have mentioned, and used by experienced and skilful workmen, not only may a durable casing impervious to water be obtained, but mouldings and enrichments of all kinds can be also executed with a sharpness and delicacy of finish which it is impossible to surpass.

In a building which was erected about seventeen years ago, and occupies a very elevated and exposed site, on the borders of Hampshire, not far distant from the sea — the capitals and bases, and the flutings of the shafts of the columns (which were executed in a most masterly manner, and with a degree of accuracy and truth, as to entasis and details, which left nothing to be desired), remain as yet uninjured. And the arrises of the fillets between the flutes, even of those columns which are exposed to the south-west, without protection of any kind from the violence of the gales of wind and rain, with which, from that quarter, we are so often visited, were, when I saw them about ten months since, as sharp and perfect as any which can be formed by the chisel of the mason.

I could mention a great number of buildings, some of them much larger, and more highly decorated, on which the same material has been used successfully. But I have selected this because it was the first of any magnitude on which I ventured to employ it; and is, therefore, the oldest work of my own to which I can refer. It is true, that a period of seventeen years (although much longer than some of the building stones which have been used in this country would endure under the same influences) offers but a narrow foundation whereon to build a hypothesis as to the permanent durability of any kind of material. But we all know that mortar, such as that which I have mentioned, will (if it escape the trials to which it is subjected for the first few years, before the induration produced by the absorption of carbonic acid has made much progress) continue to increase in hardness, for a period of which the limits have never yet been ascertained. I know of one case, where it was used as an external casing about seventy years ago, and has now become so hard and compact as to render it almost impossible to doubt its continued durability. I remember, too, that about a year and a-half ago, in clearing a site for some new buildings, I had to remove a balustrade which had been put up about fifty years before: the capping of this balustrade, which had been executed in Bath stone, was in a most deplorable and dilapidated condition; but the balusters (formed of grey stone lime, and rather fine, but very sharp siliceous sand) were, in all respects, quite sound and perfect, exhibiting not the smallest approach to decay or disintegration: indeed, nothing but the fact of their being hollow, which was disclosed on their removal, would have convinced the workmen that they had not been carved out of some hard and compact stone.

James Thomas Knowles.

VENTILATION.

SHERINGHAM'S VENTILATOR.

In the Report on the state of the workhouses, made recently by Dr. Farre and others, they advise the introduction of chimney ventilators (Arnott's valves) in all wards; and in those without fires, and occupied merely as dormitories, they recommend, in addition, that a gaslight should be fixed over the fireplace, with a short ventilating tube entering the chimney immediately above the valve, the fireplace being closed up below, an arrangement by which sufficient heat is introduced into the chimney to cause the valve to act efficiently in carrying out the foul air of the apartment together with the products of combustion: the tube, however, must be sufficiently short to prevent the air in it from becoming too much cooled before it reaches the chimney. As a general rule, they advise that all improvements should, as far as possible, have for their basis the substitution of active for passive ventilation, which latter has so often, after many expensive trials, proved totally inefficient.

They say justly, no system can be perfect which is not based upon an exact measure of the amount of fresh air required in every such building, according to the number of inmates which it is estimated to contain. These, on the lowest calculation, should never, in their opinion, exceed the proportion of one individual to every 500 feet of cubic space.

An account of a system of ventilation adopted by Messrs. Rowan in a flax spinning-mill at Milewater, Belfast, has been communicated to us. It mainly depends on the rows of hollow columns, which support the floors of the building. A sufficient opening is made near the upper part of the column, to admit a ventilator, which is placed in a position to receive a portion of the fresh air constantly supplied by the outer door of the building. The columns are placed directly one above the other (as is the case in other mills), so as to form a complete funnel, carrying off all foul evaporations at the top of the mill, while the columns are so constructed that, on the upper extremity of each, a trumpet-shaped conveyancer attached completes the apparatus. In addition to the above, ventilators are placed at the top of each window, inside.

Amongst the most recent arrangements for admitting air into living and sleeping rooms, without producing a draught (a very important point), is Mr. Sheringham's ventilator, which is very simple and cheap, and can be introduced over windows or doors. Our advertising columns show its form. By the position of the flap in front of the opening, the incoming current of fresh air is directed along the ceiling, by which means it is considered the air becomes sufficiently warmed and dispersed, to prevent the annoyance of draughts which are always felt from an open window, or where cold air is admitted at any lower level. The tendency of the flap is always to remain open, but it may be adjusted to any required angle, or closed entirely by a single cord fastened in the usual manner, or having a small weight attached. For facility in fixing, the box of the ventilator is made 9 inches by 3 inches, and 13½ inches by 6 inches, so that the removal of one brick gives the requisite opening in the *external* wall to receive the smaller size, whilst an aperture, one-and-a-half brick in width, and two bricks high, will be proper for the larger. The upper part of the openings should be from 4 to 8 inches below the ceiling. The ventilator is then fixed from within, without defacing the wall or plaster.

Messrs. Blackwood have recently published a small volume on "Ventilation, applied to Public and Domestic Structures," by Mr. R. S. Burn,* which gives a *resumé* of the subject, and contains much useful matter. The writer properly insists on the fact, "of which the evidence of all experience goes to prove the truth,—that no foul air can by any possibility be extracted from the interior of any building, however well arranged the means to insure its exit may be, unless an ample supply of other air be admitted."

In ventilating hospitals, particular care should be taken to provide a large supply of fresh air. "From the various fœtid exhalations to be met with in such places, the quantity supplied should exceed that allowed for churches. We consider that 6 or 8 cubic feet per minute, for each individual, would not be too large a proportion. The ventilating tubes should be distributed in greater number than in churches, and they should be made all of the same height. In some cases, where there are stories ranged one above another, the foul air ventiducts cannot be passed through the roof, as is done in churches. Apertures can, however, be made in the cornice, leading to air channels, all of which may be led into one large ventiduct situated in the roof of the building, or leading directly (by tubes inserted in the walls) to the eaves below the outside cornice. In leading the air thus away, the great desideratum is to keep it collected as much as possible—not to allow it to spread into crevices or empty spaces. Fresh air should be let into ventiducts formed beneath the floor,—the apertures for these made in the outside walls, beneath the windows. As birds are often found to build their nests in these holes, bars should be fixed across the openings, or plates of zinc with very large holes, say inch or inch-and-half. The gratings made in the flooring should be in the space between the rows of beds, and diffused, in its entrance to the room, as much as possible, by finely perforated zinc, or sheets of horse-hair cloth. It is of great importance to have means provided for heating the air admitted to hospitals."

Unless there be the means of warming the air so admitted, inconvenience is sometimes felt, and the openings are unceremoniously stopped up. We are disposed to think the balance of advantages would be found on the side of Sheringham's ventilators, for such a purpose.

For withdrawing the products of lamps in shops, the author says:—"If there is no air flue to which the products can be led, the tube from all the lights may be led along the ceiling to an aperture in the outer wall, at the front or back of the shop: if in the front, the aperture should be covered with an ornamental grating; if at the back, a cowl or cover may be used with decided advantage."

Our experience is against the expectation of a good result from this arrangement: no cowl or cover will prevent a down draught. If the tube be taken into a chimney, it will usually answer the purpose.

And touching draughts, we must dissent from what the author says on this subject at page 83, though at the risk of seeming to find fault with a book we would rather praise. He says,—"There is much nonsense promulgated about the danger of draughts. We have many a long summer day sat in a draught, so thorough and strong that our papers had to be retained on the table by books or weights, or they would have been blown away; and throughout the whole of the cold months of this confessedly severe winter, we have sat for hours writing, in a draught sufficient to cause a very considerable deflection of the flame of the candle we used in the evenings; and we will venture to say that no one has enjoyed so singular an immunity from colds as ourselves."

Our author may himself have such a heat-making apparatus as may be able to stand any amount of abstraction, but this is not the case with all, and we strenuously advise our readers most carefully to avoid draughts: young and delicate females are often wafted by them into the grave:—

> "If you get the wind through a hole,
> Make your will, and mind your soul."

* "Practical Ventilation, as applied to Public, Domestic, and Agricultural Structures, with remarks on Heating, Construction of Fire-places, &c." Blackwood and Sons, Edinburgh and London, 1850.

CHURCH OF ST. BARNABAS, PIMLICO.

Some time ago we gave an account of St. Barnabas's College, Queen-street, Pimlico, in the district of St. Paul's, Knightsbridge, and a view of the church, schools, and residentiary houses composing it. On Tuesday, the 11th inst. (St. Barnabas's day), the church was consecrated. It is Early Pointed in style, and has been fitted up and decorated regardless of money, as may be supposed when we say that the church, which will seat perhaps 450 persons, has cost at least 15,000*l*. The funds have been provided by the voluntary contributions of the inhabitants of St. Paul's parish, and especially the congregation attending Divine service in the church.

The church consists of a nave, with north and south aisles; a tower at the west end of the north aisle; a south porch; a chancel, with aisles; sacristy and choir vestry, all attached, connecting the church to the other portions of the college. There is a crypt under the eastern portion. The dimensions of the interior are,—length, 97 feet, including a chancel 30 feet deep; width of nave and aisles, 51 feet; and the height of the nave 50 feet. The height of the tower and spire is 170 feet. There is a peal of 10 bells, the private and personal gifts of various members of the congregation. The windows throughout the church, all of stained glass, are also the gifts of private individuals. The altar, the font, the holy vessels, the illuminated office-book for the service of the altar, the vestments, the eagle of brass, together with several other costly ornaments, are the gift of private individuals. The *corona lucis* in the chancel,—one of the handsomest yet made (it cost about 90*l*.)—was the gift of Mr. A. B. Hope. The warming apparatus was the gift of Sir J. Swinburne.